Kindly amend the application as follows:

Amendments to the Claims:

1-17 (previously cancelled)

18. (previously amended) A method for obtaining genetically modified human pluripotent hematopoietic stem cells, comprising:

a) contacting a vector comprising a polynucleotide sequence encoding a heterologous gene with a population of human CD34+ hematopoietic cells cultured with fibronectin and in the presence of an effective amount of mpl ligand and a flt3 ligand each ligand provided in a concentration range of about 0.1 ng/mL to about 500 ng/mL, wherein said vector is selected from the group consisting of retroviral vectors, adenoviral vectors, and adeno-associated viral vectors and wherein said population of CD34+ hematopoietic cells includes a subpopulation of pluripotent CD34+Thy-1+Lin- cells; and

b) obtaining said modified human pluripotent hematopoietic stem cells.

19. (previously amended) The method according to claim 18, further comprising culturing the population of human hematopoietic cells in the presence of a c-kit ligand in a concentration range of about 5 ng/mL to about 200 ng/mL prior to contacting said cells with said vector.

20. (currently amended) The method according to claim 19, further comprising culturing the population of human hematopoietic cells in the presence of interleukin 3 (IL-3) in a concentration range of about 5 ng/mL to about 200 ng/mL prior to contacting said cells with said vector, wherein said concentration range does not cause differentiation of the human pluripotent hematopoietic stem cells.

21-22 (previously cancelled)

23. (previously amended) A method for obtaining genetically modified human pluripotent hematopoietic stem cells, comprising:

a) contacting a vector comprising a polynucleotide sequence encoding a heterologous gene with a population of human CD34+ hematopoietic cells cultured with fibronectin and in the presence of an effective amount of a thrombopoietin ligand (TPO), a flt3 ligand (FL), and interleukin 6 (IL-6) wherein the TPO, FL and IL6 are each provided in a concentration range of about 0.1 ng/mL to about 500 ng/mL, and wherein said vector is selected from the group consisting of retroviral vectors, adenoviral vectors, and adeno-associated viral vectors and wherein said population of CD34+ hematopoietic cells includes a subpopulation of pluripotent CD34+Thy-1+Lin- cells; and

b) obtaining said modified human pluripotent hematopoietic stem cells.

24. (previously amended) The method of claim 23, further comprising culturing the human hematopoietic cells in

the presence of an effective amount of leukemia inhibitory factor (LIF) wherein said effective amount is in the range of about 5 ng/mL to about 200 ng/mL prior to contacting said cells with said vector.

25. (previously amended) The method of claim 23, further comprising culturing the human hematopoietic cells in the presence of an effective amount of interleukin 3 (IL-3) wherein the effective amount is in the range of about 10 ng/mL to about 100 ng/mL prior to contacting said cells with said vector.

26. (previously amended) The method of claim 23, further comprising culturing the human hematopoietic cells in the presence of a c-kit ligand in a concentration range of about 5 ng/mL to about 200 ng/mL prior to contacting said cells with said vector.

27. (previously amended) The method of claim 25, further comprising culturing the human hematopoietic cells in the presence of a c-kit ligand in a concentration range of about 5 ng/mL to about 200 ng/mL prior to contacting said cells with said vector.

28-30 (previously cancelled)

31. (previously amended) The method according to claim 23, wherein the effective amount of TPO and FL individually is in the range of about 5 ng/mL to about 200 ng/mL and the effective amount of IL-6 is in the range of about 10 ng/mL to about 100 ng/mL.

32. (previously added) The method according to claim 23, wherein the vector is a retroviral vector.

33. (previously added) The method according to claim 23, wherein the heterologous gene is a marker gene.

34. (previously amended) The method according to claim 23, further comprising expanding the modified human pluripotent hematopoietic cells.

35-36 (previously cancelled)

37. (previously amended) A method of transducing human CD34+ hematopoietic cells including a subpopulation of pluripotent CD34+Thy-1+Lin- hematopoietic stem cells comprising:

a) obtaining a source of hematopoietic cells including the subpopulation of pluripotent CD34+Thy-1+Lin- hematopoietic stem cells;

b) culturing said cells with fibronectin and the cytokines thrombopoietin (TPO), flt3 ligand (FL), and

interleukin 6 (IL-6), individually provided in the range of about 0.1 ng/mL to about 500 ng/mL;

c) infecting the cultured cells with a retroviral vector including a polynucleotide sequence encoding a heterologous gene; and

d) obtaining transduced cells wherein said gene is expressed.

38. (previously added) The method according to claim 37, wherein the TPO, FL and IL-6 are individually provided in the range of about 5 ng/mL to about 200 ng/mL.

39. (previously amended) The method according to claim 37, further comprising culturing the cells in the presence of an effective amount of leukemia inhibitory factor (LIF) wherein said effective amount is in the range of about 5 ng/mL to about 200 ng/mL.

40. (currently amended) The method according to claim 37, further comprising culturing the cells in the presence of an effective amount of IL-3 wherein said effective amount is in the range of about 10 ng/mL to about 100 ng/mL, wherein said concentration range does not cause differentiation of the human pluripotent hematopoietic stem cells.

41. (previously amended) The method according to claim 39, further comprising culturing the cells in the presence of an effective amount of IL-3 wherein said effective amount is in the range of about 10 ng/mL to about 100 ng/mL.

42. (previously amended) The method according to claim 37, wherein said effective amount of IL-6 is in the range of about 10 ng/mL to about 100 ng/mL.

43. (previously added) The method according to claim 37, wherein the TPO is provided as a mimetic.

44. (previously cancelled)

45. (previously cancelled)

46. (previously added) The method according to claim 37, wherein the heterologous gene is a marker gene.

47. (previously added) The method according to claim 37, wherein the heterologous gene is a therapeutic gene.

48. (previously added) The method according to claim 18 wherein the fibronectin is RetroNectinTM.

49. (previously added) The method according to claim 23 wherein the fibronectin is RetroNectinTM.

50. (previously added) The method according to claim 37 wherein the fibronectin is RetroNectinTM.

51. (previously cancelled)

52. (previously added) A method for obtaining genetically modified human hematopoietic cells, comprising:

a) contacting a vector comprising a polynucleotide sequence encoding a heterologous gene with a population of human CD34+ hematopoietic cells cultured with fibronectin and in the presence of an effective amount of mpl ligand and a flt3 ligand each ligand provided in a concentration range of about 0.1 ng/mL to about 500 ng/mL, and optionally in the presence of one or more cytokines selected from: c-kit ligand in a concentration range of about 5 ng/mL to about 200 ng/mL, interleukin 3 (IL-3) in a concentration range of about 5 ng/mL to about 200 ng/mL, leukemia inhibitory factor (LIF) in a concentration range of about 5 ng/mL to about 200 ng/mL, and interleukin 6 (IL-6) in a concentration range of about 5 ng/mL

to about 200 ng/mL, wherein said vector is selected from the group consisting of retroviral vectors, adenoviral vectors, and adeno-associated viral vectors; and

b) obtaining said modified human hematopoietic cells.